

CLAIMS

1. A fish serine proteinase for use as a medicament.

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2. A proteinase according to claim 1 that is selected from the group consisting of a trypsin, a chymotrypsin and any mixture hereof.

3. A proteinase according to claim 1 or 2 that is not multifunctional.

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4. A proteinase according to any of claims 1-3 that is derived from Atlantic cod.

5. A proteinase according to claim 1 that is a trypsin derived from Atlantic cod.

15 6. A proteinase according to claim 5 that is selected from the group consisting of trypsin I, trypsin II and trypsin III.

7. A proteinase according to claim 5 that is selected from the group consisting of chymotrypsin A and chymotrypsin B.

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8. A proteinase according to claim 1 that is a trypsin having at least 90% amino acid sequence homology with any of trypsin I, trypsin II and trypsin III derived from Atlantic cod.

9. A proteinase according to claim 1 that is a chymotrypsin having at least 90% amino acid
25 sequence homology with any of chymotrypsin A and chymotrypsin B isolated from Atlantic cod.

10. A proteinase according to claim 1 for use as a medicament for treating and/or preventing a disease in a human or an animal, said disease is selected from the group
30 consisting of pain, acute inflammation, chronic inflammation, arthritis, inflamed joints, bursitis, osteoarthritis, rheumatoid arthritis, juvenile rheumatoid arthritis, septic arthritis, fibromyalgia, systemic lupus erythematosus, phlebitis, tendinitis, rash, psoriasis, acne, eczema, facial seborrheic eczema, eczema of the hands, face or neck, foreskin infections, athlete's foot, fistulae infections, infected topical ulcers, navel infections in newborns,
35 wrinkles, scars, keloids, boils, warts and allergic itch, hemorrhoids, wounds, wound

infections, wounds from burns, a fungal infection and an immunological disorder including an autoimmune disease.

11. A proteinase according to claim 1 for use as a medicament for
5. removing dead or peeling skin from otherwise healthy skin.

12. Use of a fish serine proteinase in the manufacturing of a medicament for treating and/or preventing a disease in a human or an animal, said disease is selected from the group consisting of pain, acute inflammation, chronic inflammation, arthritis, inflamed joints,
10 bursitis, osteoarthritis, rheumatoid arthritis, juvenile rheumatoid arthritis, septic arthritis, fibromyalgia, systemic lupus erythematosus, phlebitis, tendinitis, rash, psoriasis, acne, eczema, facial seborrheic eczema, eczema of the hands, face or neck, foreskin infections, athlete's foot, fistulae infections, infected topical ulcers, navel infections in newborns, wrinkles, scars, keloids, boils, warts and allergic itch, hemorrhoids, wounds, wound
15 infections, wounds from burns, a fungal infection and an immunological disorder including an autoimmune disease.

13. Use of a fish serine proteinase in the manufacturing of a medicament for removing dead or peeling skin from otherwise healthy skin.

20 14. Use of a fish serine proteinase in the manufacturing of a medicament for treating or preventing a disease in whose pathogenesis a receptor-mediated binding is involved.

15. Use according to claim 14 where the disease is caused by a pathogenic organism
25 selected from the group consisting of a virus, a bacterium, a fungus, a parasite and a protozoan.

16. Use according to any of claims 12-14 where the fish serine proteinase is a proteinase according to any of claims 2-9.

30 17. A pharmaceutical composition comprising a fish serine proteinase.

18. A composition according to claim 15 wherein the fish serine proteinase is a proteinase according to any of claims 2-11

19. A composition according to claim 15 or 16 that is a composition for topical use.

20. A composition according to claim 19 that is a hydrogel.

5 21. A composition according to claim 20 further comprising a polyvalent alcohol including glycerol.

22. A composition according to claim 17 comprising a further pharmaceutically active compound.

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23. A cosmetic composition comprising a fish serine proteinase.

24. A composition according to claim 23 wherein the fish serine proteinase is a proteinase according to any of claims 2-11

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25. A composition according to claim 23 that is a hydrogel.

26. A composition according to claim 23 further comprising a polyvalent alcohol including glycerol.

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27. A composition according to claim 23 comprising a further cosmetically active compound.

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28. A method of treating and/or preventing a disease in a human or an animal, the method comprising administering to said human or animal a pharmaceutically effective amount of a fish serine proteinase.

29. A method according to claim 28 wherein the proteinase is a proteinase according to any of claims 2-11.

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30. A method according to claim 28 wherein the proteinase is administered topically.

31. A method according to claim 30 wherein the proteinase is administered gastroenterally.

32. A method of preparing a purified preparation of cod trypsin isoenzymes, the method comprising the steps of

(i) preparing an aqueous extract of cod viscera,

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(ii) subjecting the aqueous extract to a series of chromatography steps including at least one step using a cation exchange resin, at least one step using an anion exchange resin and as a last step a chromatography step using a *p*-aminobenzamidine affinity ligand, and

10 (iii) desorbing and eluting the trypsin bound to the *p*-aminobenzamidine affinity ligand.

33. A method according to claim 32 wherein the purification is continued until a sample from the last step, when it is subjected to SDS-PAGE electrophoresis and FPLC Mono Q chromatography shows only three bands of trypsin isoenzymes.

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34. A method according to claim 32 or 33 wherein the purification is continued until the preparation contains a specific activity of at least 50 U/mg protein using Cbz-GPR-pNA as substrate.

20 35. A method according to claim 34 wherein the specific activity is 100 U/mg or more.

36. A method according to claim 32 comprising as a further step that the purified preparation is sterile filtered using a 0.22 µm filter.

25 37. A purified preparation of cod trypsin comprising, when it is subjected to SDS-PAGE electrophoresis and FPLC Mono Q chromatography as the only protein bands three bands of trypsin isoenzymes.

30 38. A preparation according to claim 37 containing a specific activity of at least 50 U/mg protein using Cbz-GPR-pNA as substrate.

39. A preparation according to claim 37 where the specific activity is 100 U/mg or more.

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